

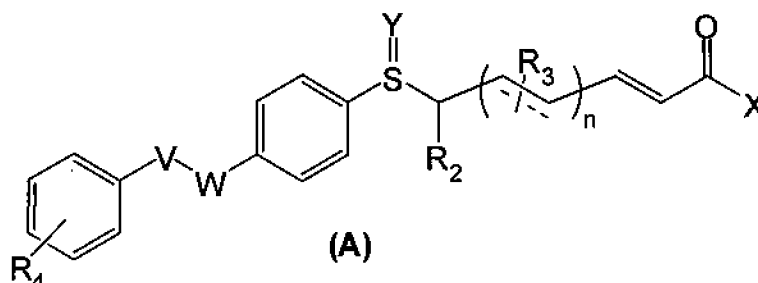
In the Claims:

This listing of claims will replace all prior versions, and listings of the claims in the application.

Please amend claims 41-44, 54, 56-57, and 71; and add new claims 72-82, as follows:

1-40. (Canceled).

41. (Currently amended) A compound of general formula (A)



in which:

R^2 and R^3 are independently hydrogen, (C_1-C_{12}) alkyl, substituted (C_1-C_{12}) alkyl, or unsaturated (C_2-C_{12}) comprising one or more $C=C$ bond or $C\equiv C$ bond, $(C_6$ or $C_{10})$ aryl or $(C_6$ or $C_{10})$ heteroaryl, or a combination thereof to form a linked or fused ring system, or (C_1-C_{10}) alkoxy, (C_1-C_{10}) thioalkoxy, hydroxyl, (C_1-C_{10}) hydroxylalkyl, halo, (C_1-C_{10}) haloalkyl, cyano, nitro, amino, amido, (C_1-C_{10}) alkylamino, (C_1-C_{10}) alkylcarbonyloxy, (C_1-C_{10}) alkoxycarbonyl, (C_1-C_{10}) alkylcarbonyl, (C_1-C_{10}) alkylthiocarbonyl, (C_1-C_{10}) alkylsulfonylamino, aminosulfonyl, (C_1-C_{10}) alkylsulfinyl, or (C_1-C_{10}) alkylsulfonyl, in which the saturated or an unsaturated hydrocarbon chain is optionally interrupted by O, S, NR, CO, C(NR), N(R)SO₂, SO₂N(R), N(R)C(O)O, OC(O)N(R), N(R)C(O)N(R), OC(O), C(O)O, OSO₂, SO₂O, or OC(O)O, where R is independently hydrogen, (C_1-C_{10}) alkyl, (C_1-C_{10}) alkenyl, (C_1-C_{10}) alkynyl, (C_1-C_{10}) alkoxy, (C_1-C_{10}) hydroxylalkyl, hydroxyl, (C_1-C_{10}) haloalkyl, where each of the saturated or unsaturated hydrocarbon chains are optionally substituted with (C_1-C_{10}) alkyl, (C_1-C_{10}) alkenyl, (C_1-C_{10}) alkynyl, (C_1-C_{10}) alkoxy, hydroxyl, hydroxyl, (C_1-C_{10}) hydroxylalkyl, halo, (C_1-C_{10}) haloalkyl, amino, (C_1-C_{10}) alkylcarbonyloxy, (C_1-C_{10}) alkoxycarbonyl, (C_1-C_{10}) alkylcarbonyl, (C_1-C_{10})

alkylsulfonylamino, aminosulfonyl, or (C₁-C₁₀) alkylsulfonyl, or R² and R³ optionally form a (C₆ or C₁₀) aryl, (C₆ or C₁₀) arylalkyl, a 6- or 10-membered ring system having one or more heteroatoms in the ring, (C₃-C₈) heterocycloalkenyl, (C₅-C₈) cycloalkene ring, (C₅-C₈) cycloalkyl, (C₅-C₈) heterocycloalkyl linked or fused ring system, optionally containing up to 3 heteroatoms selected from oxygen, nitrogen, sulphur, and phosphorous;

R₄ is hydrogen, unsubstituted or substituted C₁-C₁₀ alkyl, an unsaturated hydrocarbon chain of up to ten carbon atoms comprising one or more carbon-carbon double bonds, C₆ or C₁₀ aryl, a 5 to 10 membered heterocyclic group, C₁-C₁₀ alkoxy, C₁-C₁₀ thioalkoxy, hydroxyl, halo, cyano, nitro, amino, amido, (C₁-C₁₀ alkyl)thiocarbonyl, (C₁-C₁₀ alkyl)sulfonylamino, aminosulfonyl, C₁-C₁₀ alkylsulfinyl, C₁-C₁₀ alkylsulfonyl, or a saturated or unsaturated C₃-C₁₂ hydrocarbon chain interrupted by O, S, NR, CO, C(NR), C(R)SO₂, or OC(O)O, wherein R is as defined above and the saturated or unsaturated hydrocarbon chain is optionally substituted as defined above;

n is equal to 0, 1 or 2;

X is hydroxyl (-OH), -OR, NHR, hydroxamate (-NHOH), NHOR, NROR, NRNHR, or SR, where each R is independently hydrogen, C₁-C₆ alkyl or substituted C₁-C₆ alkyl; and

Y is 0, 1 or 2 oxygen atoms; ~~or NR where R is H, OH, C₁-C₆ alkyl, or substituted C₁-C₆ alkyl;~~

in which V and W are as follows:

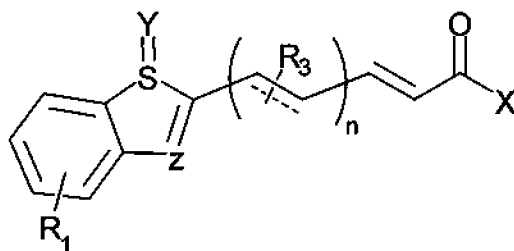
a single carbon-carbon bond;

V is CR and W is N, saturated or unsaturated;

V is N and W is CR, saturated or unsaturated;

a linkage of the form VW or WV = RRC-O or RRC-S, wherein each R is independently selected from hydrogen, V and W are each optionally substituted (C₁-C₆) alkyl, C₆ aryl or heterocycle, and
~~in which each R is independently defined.~~

42. (Currently amended) A compound of general formula (B1)



(B1)

in which:

R^1 is (C_6 or C_{10}) aryl, (C_6 or C_{10}) arylalkyl, a 6- or 10-membered ring system having one or more heteroatoms in the ring, (C_6 or C_{10}) heteroaryl, (C_3 - C_8) heterocycloalkenyl, (C_5 - C_8) cycloalkene ring, (C_5 - C_8) cycloalkyl, (C_5 - C_8) heterocycloalkyl or a combination thereof to form a linked or fused ring system, the cyclic moiety being optionally substituted with (C_1 - C_{10}) alkyl, (C_1 - C_{10}) alkenyl, (C_1 - C_{10}) alkynyl, (C_1 - C_{10}) alkoxy, (C_1 - C_{10}) thioalkoxy, hydroxyl, (C_1 - C_{10}) hydroxylalkyl, halo, (C_1 - C_{10}) haloalkyl, amino, amido, (C_1 - C_{10}) alkylamino, (C_1 - C_{10}) alkylcarbonyloxy, (C_1 - C_{10}) alkoxy carbonyl, (C_1 - C_{10}) alkylcarbonyl, (C_1 - C_{10}) alkylthiocarbonyl, (C_1 - C_{10}) alkylsulfonylamino, aminosulfonyl, (C_1 - C_{10}) alkylsulfinyl, or (C_1 - C_{10}) alkylsulfonyl,

R^3 is hydrogen, (C_1 - C_{12}) alkyl, substituted (C_1 - C_{12}) alkyl, or unsaturated (C_2 - C_{12}) comprising one or more C=C bond or C≡C bond, (C_6 or C_{10}) aryl or (C_6 or C_{10}) heteroaryl, or a combination thereof to form a linked or fused ring system, or (C_1 - C_{10}) alkoxy, (C_1 - C_{10}) thioalkoxy, hydroxyl, (C_1 - C_{10}) hydroxylalkyl, halo, (C_1 - C_{10}) haloalkyl, cyano, nitro, amino, amido, (C_1 - C_{10}) alkylamino, (C_1 - C_{10}) alkylcarbonyloxy, (C_1 - C_{10}) alkoxy carbonyl, (C_1 - C_{10}) alkylcarbonyl, (C_1 - C_{10}) alkylthiocarbonyl, (C_1 - C_{10}) alkylsulfonylamino, aminosulfonyl, (C_1 - C_{10}) alkylsulfinyl, or (C_1 - C_{10}) alkylsulfonyl, in which the saturated or an unsaturated hydrocarbon chain is optionally interrupted by O, S, NR, CO, C(NR), N(R)SO₂, SO₂N(R), N(R)C(O)O, OC(O)N(R), N(R)C(O)N(R), OC(O), C(O)O, OSO₂, SO₂O, or OC(O)O, where R is independently hydrogen, (C_1 - C_{10}) alkyl, (C_1 - C_{10}) alkenyl, (C_1 - C_{10}) alkynyl, (C_1 - C_{10}) alkoxy, (C_1 - C_{10}) hydroxylalkyl, hydroxyl, (C_1 - C_{10}) haloalkyl, where each of the saturated or unsaturated hydrocarbon chains are optionally substituted with (C_1 - C_{10}) alkyl, (C_1 - C_{10}) alkenyl, (C_1 - C_{10}) alkynyl, (C_1 - C_{10}) alkoxy, hydroxyl, hydroxyl, (C_1 - C_{10}) hydroxylalkyl, halo, (C_1 - C_{10}) haloalkyl,

amino, (C₁-C₁₀) alkylcarbonyloxy, (C₁-C₁₀) alkoxy carbonyl, (C₁-C₁₀) alkylcarbonyl, (C₁-C₁₀) alkylsulfonylamino, aminosulfonyl, or (C₁-C₁₀) alkylsulfonyl,

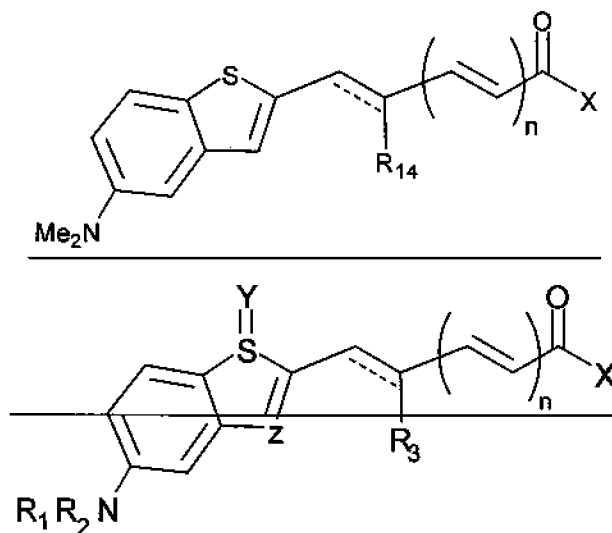
n is equal to 0, 1 or 2;

X is hydroxyl (-OH), -OR, NHR, hydroxamate (-NHOH), NHOR, NROR, NRNHR, or SR, where each R is independently hydrogen, C₁-C₆ alkyl or substituted C₁-C₆ alkyl; and

Y is 0, 1 or 2 oxygen atoms; ~~or NR where R is H, OH, C₁-C₆ alkyl, or substituted C₁-C₆ alkyl; and~~

Z is a one atom linkage of N, CH, or CR or a two-atom linkage of varying combinations of atoms of CH, CR, O, N, S, SO, SO₂, wherein R is C₁-C₆ alkyl or substituted C₁-C₆ alkyl.

43. **(Currently amended)** A compound of general formula: ~~(B2)~~



~~(B2)~~

in which:

R¹⁴ is hydrogen or (C₁-C₆)alkyl;

~~R¹ is (C₆ or C₁₀) aryl, (C₆ or C₁₀) arylalkyl, a 6 or 10 membered ring system having one or more heteroatoms in the ring, (C₆ or C₁₀) heteroaryl, (C₃-C₈) heterocycloalkenyl, (C₅-C₈) cycloalkene ring, (C₅-C₈) cycloalkyl, (C₅-C₈) heterocycloalkyl or a combination thereof to form a linked or fused ring system, the cyclic moiety being optionally substituted with (C₁-C₁₀) alkyl,~~

(C₄-C₁₀)-alkenyl, (C₄-C₁₀)-alkynyl, (C₁-C₁₀)-alkoxy, (C₁-C₁₀)-thioalkoxy, hydroxyl, (C₁-C₁₀) hydroxylalkyl, halo, (C₄-C₁₀) haloalkyl, amino, amido, (C₄-C₁₀) alkylamino, (C₄-C₁₀) alkylecarbonyloxy, (C₄-C₁₀)-alkoxycarbonyl, (C₄-C₁₀)-alkylecarbonyl, (C₄-C₁₀)-alkylthiocarbonyl, (C₄-C₁₀)-alkylsulfonylamino, aminosulfonyl, (C₄-C₁₀)-alkylsulfinyl, or (C₄-C₁₀)-alkylsulfonyl,

~~R² and R³ are each independently hydrogen, (C₄-C₁₂) alkyl, substituted (C₄-C₁₂) alkyl, or unsaturated (C₂-C₁₂) comprising one or more C=C bond or C≡C bond, (C₆-or-C₁₀) aryl or (C₆-or-C₁₀) heteroaryl, or a combination thereof to form a linked or fused ring system, or (C₄-C₁₀) alkoxy, (C₄-C₁₀) thioalkoxy, hydroxyl, (C₄-C₁₀) hydroxylalkyl, halo, (C₄-C₁₀) haloalkyl, cyano, nitro, amino, amido, (C₄-C₁₀) alkylamino, (C₄-C₁₀) alkylecarbonyloxy, (C₄-C₁₀)-alkoxycarbonyl, (C₄-C₁₀) alkylecarbonyl, (C₄-C₁₀) alkylthiocarbonyl, (C₄-C₁₀) alkylsulfonylamino, aminosulfonyl, (C₄-C₁₀) alkylsulfinyl, or (C₄-C₁₀) alkylsulfonyl, in which the saturated or an unsaturated hydrocarbon chain is optionally interrupted by O, S, NR, CO, C(NR), N(R)SO₂, SO₂N(R), N(R)C(O)O, OC(O)N(R), N(R)C(O)N(R), OC(O), C(O)O, OSO₂, SO₂O, or OC(O)O, where R is independently hydrogen, (C₄-C₁₀) alkyl, (C₄-C₁₀) alkenyl, (C₄-C₁₀) alkynyl, (C₄-C₁₀) alkoxy, (C₄-C₁₀) hydroxylalkyl, hydroxyl, (C₄-C₁₀) haloalkyl, where each of the saturated or unsaturated hydrocarbon chains are optionally substituted with (C₄-C₁₀) alkyl, (C₄-C₁₀) alkenyl, (C₄-C₁₀) alkynyl, (C₄-C₁₀) alkoxy, hydroxyl, hydroxyl, (C₄-C₁₀) hydroxylalkyl, halo, (C₄-C₁₀) haloalkyl, amino, (C₄-C₁₀) alkylecarbonyloxy, (C₄-C₁₀)-alkoxycarbonyl, (C₄-C₁₀) alkylecarbonyl, (C₄-C₁₀) alkylsulfonylamino, aminosulfonyl, or (C₄-C₁₀) alkylsulfonyl; or~~

~~R² and R³ optionally form a (C₆-or-C₁₀) aryl, (C₆-or-C₁₀) arylalkyl, a 6- or 10-membered ring system having one or more heteroatoms in the ring, (C₃-C₈) heterocycloalkenyl, (C₅-C₈) cycloalkene ring, (C₅-C₈) cycloalkyl, (C₅-C₈) heterocycloalkyl linked or fused ring system, optionally containing up to 3 heteroatoms, e.g. oxygen, nitrogen, sulphur or phosphorous; or~~

~~R¹ and R² optionally form a (C₆-or-C₁₀) aryl, (C₆-or-C₁₀) arylalkyl, (C₆-or-C₁₀) heteroaryl, (C₃-C₈) heterocycloalkenyl, (C₅-C₈) cycloalkene ring, (C₅-C₈) cycloalkyl, (C₅-C₈) heterocycloalkyl linked or fused ring system, optionally the ring formed is further substituted with a group R¹ as defined above, or the ring formed is fused to a further C₆-aryl-group which is optionally substituted with a group R¹ as defined above, or a group R¹R²N, with R¹ and R² as defined above,~~

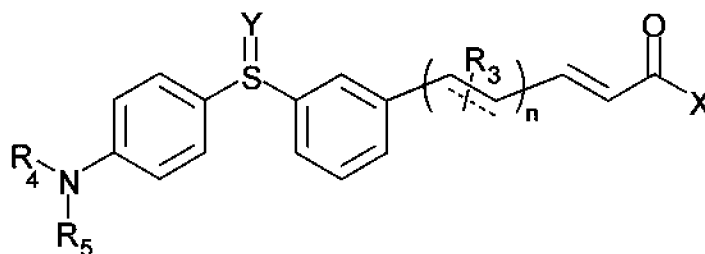
n is equal to ~~[[0,]]~~ 1 or 2; ~~[[,]]~~ and

X is hydroxyl (-OH), -OR, or ~~[[NHR,]]~~ hydroxamate (-NHOH), ~~NHOR, NROR,~~
~~NRNHR, or SR,~~ where each R is independently hydrogen, C₁-C₆ alkyl or substituted C₁-C₆ alkyl,
~~, and~~

~~Y is 0, 1 or 2 oxygen atoms, or NR where R is H, OH, OR or C, where R is C₁-C₆ alkyl~~
~~or substituted C₁-C₆ alkyl,~~

~~and Z is a one atom linkage of N, CH or CR, or a two atom linkage of varying combinations of~~
~~atoms of CH, CR, O, N, S, SO, SO₂, and in which each R is independently C₁-C₆ alkyl or~~
~~substituted C₁-C₆ alkyl.~~

44. (Currently amended) A compound of general formula (C)



(C)

in which:

R³ is hydrogen, (C₁-C₁₂) alkyl, substituted (C₁-C₁₂) alkyl, or unsaturated (C₂-C₁₂)
 comprising one or more C=C bond or C≡C bond, (C₆ or C₁₀) aryl or (C₆ or C₁₀) heteroaryl, or a
 combination thereof to form a linked or fused ring system, or (C₁-C₁₀) alkoxy, (C₁-C₁₀)
 thioalkoxy, hydroxyl, (C₁-C₁₀) hydroxylalkyl, halo, (C₁-C₁₀) haloalkyl, cyano, nitro, amino,
 amido, (C₁-C₁₀) alkylamino, (C₁-C₁₀) alkylcarbonyloxy, (C₁-C₁₀) alkoxy carbonyl, (C₁-C₁₀)
 alkylcarbonyl, (C₁-C₁₀) alkylthiocarbonyl, (C₁-C₁₀) alkylsulfonylamino, aminosulfonyl, (C₁-C₁₀)
 alkylsulfinyl, or (C₁-C₁₀) alkylsulfonyl, in which the saturated or an unsaturated hydrocarbon
 chain is optionally interrupted by O, S, NR, CO, C(NR), N(R)SO₂, SO₂N(R), N(R)C(O)O,
 OC(O)N(R), N(R)C(O)N(R), OC(O), C(O)O, OSO₂, SO₂O, or OC(O)O, where R is
 independently hydrogen, (C₁-C₁₀) alkyl, (C₁-C₁₀) alkenyl, (C₁-C₁₀) alkynyl, (C₁-C₁₀) alkoxy,

(C₁-C₁₀) hydroxylalkyl, hydroxyl, (C₁-C₁₀) halolalkyl, where each of the saturated or unsaturated hydrocarbon chains are optionally substituted with (C₁-C₁₀) alkyl, (C₁-C₁₀) alkenyl, (C₁-C₁₀) alkynyl, (C₁-C₁₀) alkoxy, hydroxyl, hydroxyl, (C₁-C₁₀) hydroxylalkyl, halo, (C₁-C₁₀) haloalkyl, amino, (C₁-C₁₀) alkylcarbonyloxy, (C₁-C₁₀) alkoxycarbonyl, (C₁-C₁₀) alkylcarbonyl, (C₁-C₁₀) alkylsulfonylamino, aminosulfonyl, or (C₁-C₁₀) alkylsulfonyl;

n is equal to 0, 1 or 2;

X is hydroxyl (-OH), -OR, NHR, hydroxamate (-NHOH), NHOR, NROR, NRNHR, or SR, where each R is independently hydrogen, C₁-C₆ alkyl or substituted C₁-C₆ alkyl;

Y is 0, 1 or 2 oxygen atoms; ~~or NR where R is H, OH, OR or C₁-C₆ alkyl or substituted C₁-C₆ alkyl;~~ and

R⁴ and R⁵ are each independently hydrogen, unsubstituted or substituted C₁-C₁₀ alkyl, an unsaturated hydrocarbon chain of up to ten carbon atoms comprising one or more carbon-carbon double bonds, C₆ or C₁₀ aryl, a 5- to 10-membered heterocyclic group, C₁-C₁₀ alkoxy, C₁-C₁₀ thioalkoxy, hydroxyl, halo, cyano, nitro, amino, amido, (C₁-C₁₀ alkyl)carbonyloxy, (C₁-C₁₀ alkoxy)carbonyl, (C₁-C₁₀ alkyl)carbonyl, (C₁-C₁₀ alkyl)thiocarbonyl, (C₁-C₁₀ alkyl)sulfonylamino, aminosulfonyl, C₁-C₁₀ alkylsulfinyl, C₁-C₁₀ alkylsulfonyl, or a saturated or unsaturated C₃-C₁₂ hydrocarbon chain interrupted by O, S, NR, CO, C(NR), N(R)SO₂, SO₂N(R), N(R)C(O)O, OC(O)N(R), N(R)C(O)N(R), OC(O), C(O)O, OSO₂, SO₂O or OC(O)O₂ where R is as defined above and the saturated or unsaturated hydrocarbon chain is optionally substituted as defined above.

45. **(Previously presented)** A compound as claimed in claim 41, in which R² and R³ are both Hydrogen.

46. **(Previously presented)** A compound as claimed in claim 41, in which R² is methyl (CH₃) and R³ is Hydrogen.

47. **(Previously presented)** A compound as claimed in claim 41, in which R² is Hydrogen and R³ is methyl (CH₃).

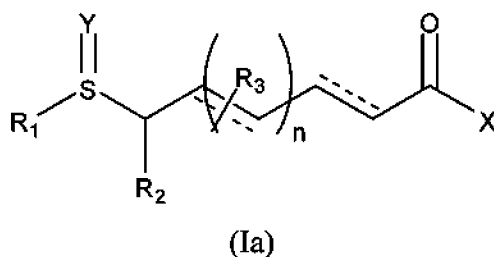
48. **(Previously presented)** A compound as claimed in claim 41, in which R^2 and R^3 are both methyl (CH_3).

49. **(Previously presented)** A compound as claimed in claim 41, in which X is $-\text{OH}$, $-\text{OC}_2\text{H}_5$, $-\text{OCH}_3$, or NHOH .

50. **(Previously presented)** A compound as claimed in claim 41, in which Y is represented by one or two oxygen atoms.

51-52. **(Canceled).**

53. **(Previously presented)** A compound of general formula (Ia)



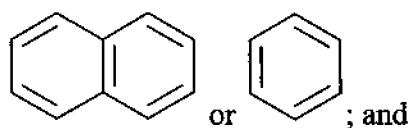
wherein:

R^2 and R^3 are both Hydrogen (H);

Y is two oxygen atoms;

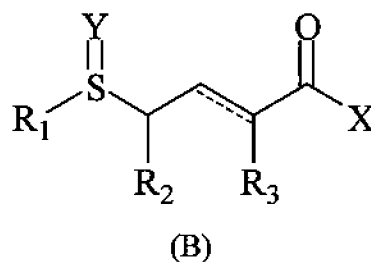
n is 1;

R^1 is



X is $-\text{OH}$, $-\text{CH}_3$, $-\text{OC}_2\text{H}_5$ or NHOH .

54. **(Currently amended)** A compound of general formula (B)



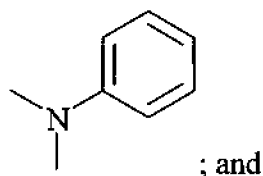
wherein:

R^2 and R^3 are both methyl (CH_3);

Y is zero oxygen atoms;

~~n is zero;~~

R_1 is



X is $-\text{OCH}_3$, $-\text{OC}_2\text{H}_5$ or $-\text{OH}$.

55. (Previously presented) A compound which is:

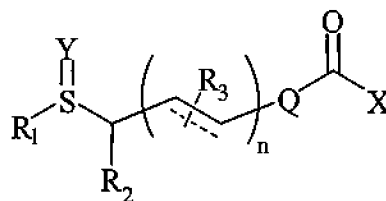
- 6-(4-Dimethylamino-phenylsulfanyl)-hexa-2,4-dienoic acid methyl ester (6d),
- 6-(4-Methoxy-phenylsulfanyl)-hexa-2,4-dienoic acid methyl ester (6e),
- 6-(4-Chloro-phenylsulfanyl)-hexa-2,4-dienoic acid hydroxyamide (7b),
- 6-(4-Dimethylamino-phenylsulfanyl)-hexa-2,4-dienoic acid hydroxyamide (7c),
- 6-(4-Chloro-benzenesulfinyl)-hexa-2,4-dienoic acid methyl ester (8b),
- 6-(4-Methoxy-benzenesulfinyl)-hexa-2,4-dienoic acid methyl ester (8c),
- 6-Benzenesulfinyl-hexa-2,4-dienoic acid (8d),
- 6-(4-Chloro-benzenesulfinyl)-hexa-2,4-dienoic acid hydroxyamide (9a),
- 6-(4-Methoxy-benzenesulfinyl)-hexa-2,4-dienoic acid hydroxyamide (9b),
- 6-Benzenesulfonyl-hexa-2,4-dienoic acid (10a),
- 6-Benzenesulfonyl-hexa-2,4-dienoic acid methyl ester (10b),
- 6-Benzenesulfonyl-hexa-2,4-dienoic acid hydroxyamide (11a),

6-(Naphthalen-2-ylsulfanyl)-hexa-2,4-dienoic acid methyl ester (13b),
6-(Naphthalen-2-ylsulfanyl)-hexa-2,4-dienoic acid hydroxyamide (14a),
4-(4-Dimethylamino-phenylsulfanyl)-2-methyl-pent-2-enoic acid methyl ester (21b),
6-(4-Dimethylamino-phenylsulfanyl)-4-methyl-hepta-2,4-dienoic acid ethyl ester (24c),
6-(4-Dimethylamino-phenylsulfanyl)-4-methyl-hepta-2,4-dienoic acid hydroxyamide
(25c),
6-(4-Chloro-phenylsulfanyl)-hexanoic acid methyl ester (28b),
7-(4-Chloro-phenylsulfanyl)-heptanoic acid ethyl ester (28c),
6-(4-Dimethylamino-phenylsulfanyl)-hexanoic acid methyl ester (28e),
6-(4-((4-Chlorobenzyl)-methylamino)-phenylsulfanyl)-hexanoic acid methyl ester (28f),
6-(4-(4-Chlorobenzenesulfonylamino)-phenylsulfanyl)-hexanoic acid methyl ester
(28g),
6-(4-Bromo-phenylsulfanyl)-hexanoic acid methyl ester (28h),
6-(4'-Chloro-biphenyl-4-ylsulfanyl)-hexanoic acid methyl ester (28i),
6-(4-Chloro-phenylsulfanyl)-hexanoic acid hydroxyamide (29b),
6-(4-Dimethylamino-phenylsulfanyl)-hexanoic acid hydroxamide (29c),
6-(4-(4-Chlorobenzenesulfonylamino)-phenylsulfanyl)-hexanoic acid hydroxamide
(29g),
6-(4'-Chloro-biphenyl-4-ylsulfanyl)-hexanoic acid hydroxamide (29i),
6-(4-Chloro-benzenesulfinyl)-hexanoic acid methyl ester (30b),
7-(4-Chloro-benzenesulfinyl)-heptanoic acid ethyl ester (30c),
6-(4-Dimethylamino-benzenesulfinyl)-hexanoic acid methyl ester (30e),
6-(4-((4-Chlorobenzyl)-methylamino)-benzenesulfinyl)-hexanoic acid methyl ester
(30f),
6-(4'-Chloro-biphenyl-4-ylsulfinyl)-hexanoic acid methyl ester (30i),
6-(4-Chloro-benzenesulfinyl)-hexanoic acid hydroxyamide (31a),
7-(4-Chloro-benzenesulfinyl)-heptanoic acid hydroxyamide (31c),
6-(4-Dimethylamino-benzenesulfinyl)-hexanoic acid hydroxyamide (31e),
6-(4-((4-Chlorobenzyl)-methylamino)-benzenesulfinyl)-hexanoic acid hydroxamide

(31f),
 6-(4'-Chloro-biphenyl-4-sulfinyl)-hexanoic acid hydroxyamide (31i),
 (2E,4E)-5-(5-Dimethylamino-benzo[*b*]thiophen-2-yl)-penta-2,4-dienoic acid ethyl ester
 (41a),
 (2E,4E)-5-(5-Dimethylaminobenzo[*b*]thiophen-2-yl)-penta-2,4-dienoic acid hydroxamide
 (42a),
 (E)-3-(3-(4-Dimethylamino-phenylsulfanyl)-phenyl)-acrylic acid ethyl ester (51a.), or
 (E)-3-(3-(4-Dimethylamino-phenylsulfanyl)-phenyl)-*N*-hydroxy-acrylamide (52a).

56. **(Currently amended)** A pharmaceutical composition comprising a compound of claims 41 to 50, ~~and~~ or 53 to 55, and optionally a pharmaceutically acceptable adjuvant and/or diluent.

57. **(Currently amended)** A method of inhibiting HDAC activity in an individual comprising administering to said individual a therapeutically effective amount of a compound of general formula (I):



(I)

in which:

R^1 is (C_6 or C_{10}) aryl, (C_6 or C_{10}) arylalkyl, a 6- or 10-membered ring system having one or more heteroatoms in the ring, (C_6 or C_{10}) heteroaryl, (C_3 - C_8) heterocycloalkenyl, (C_5 - C_8) cycloalkene ring, (C_5 - C_8) cycloalkyl, (C_5 - C_8) heterocycloalkyl or a combination thereof to form a linked or fused ring system, the cyclic moiety being optionally substituted with (C_1 - C_{10}) alkyl, (C_1 - C_{10}) alkenyl, (C_1 - C_{10}) alkynyl, (C_1 - C_{10}) alkoxy, (C_1 - C_{10}) thioalkoxy, hydroxyl, (C_1 - C_{10}) hydroxylalkyl, halo, (C_1 - C_{10}) haloalkyl, amino, amido, (C_1 - C_{10}) alkylamino, (C_1 - C_{10}) alkylcarbonyloxy, (C_1 - C_{10}) alkoxycarbonyl, (C_1 - C_{10}) alkylcarbonyl, (C_1 - C_{10}) alkylthiocarbonyl,

(C₁-C₁₀) alkylsulfonylamino, aminosulfonyl, (C₁-C₁₀) alkylsulfinyl, or (C₁-C₁₀) alkylsulfonyl,

R² and R³ are each independently hydrogen, (C₁-C₁₂) alkyl, unsaturated (C₂-C₁₂) comprising one or more C=C bond or C≡C bond, (C₁-C₁₀) alkoxy, (C₁-C₁₀) thioalkoxy, hydroxyl, (C₁-C₁₀) hydroxylalkyl, halo, or (C₁-C₁₀) haloalkyl; or

R² and R³ optionally form a (C₆ or C₁₀) aryl, (C₆ or C₁₀) arylalkyl, a 6- or 10-membered ring system having one or more heteroatoms in the ring, (C₃-C₈) heterocycloalkenyl, (C₅-C₈) cycloalkene ring, (C₅-C₈) cycloalkyl, (C₅-C₈) heterocycloalkyl linked or fused ring system, optionally containing up to 3 heteroatoms selected from oxygen, nitrogen, sulphur, and phosphorous; or

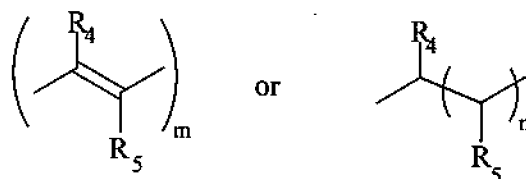
R¹ and R² optionally form a (C₆ or C₁₀) aryl, (C₆ or C₁₀) arylalkyl, (C₆ or C₁₀) heteroaryl, (C₃-C₈) heterocycloalkenyl, (C₅-C₈) cycloalkene ring, (C₅-C₈) cycloalkyl, (C₅-C₈) heterocycloalkyl linked or fused ring system, optionally the ring formed is further substituted with a group R¹ as defined above, or the ring formed is fused to a further C₆ aryl group which is optionally substituted with a group R¹ as defined above, or a group R¹R²N, with R¹ and R² as defined above;

n is equal to 0, 1 or 2;

X is hydroxyl (-OH), -OR, NHR, hydroxamate (-NHOH), NHOR, NROR, NRNHR, or SR, wherein each R is independently hydrogen, C₁-C₆ alkyl or substituted C₁-C₆ alkyl;

Y is 0, 1 or 2 oxygen atoms; ~~or NR where R is H, OH, C₁-C₆ alkyl, or substituted C₁-C₆ alkyl;~~

Q represents



wherein:

m is an integer from 1 to 4;

n is an integer from 1 to 8; and

R⁴ and R⁵ each independently represent hydrogen, or unsubstituted or substituted C₁-C₁₀

alkyl;

or a pharmaceutically acceptable salt thereof.

58-63. (Canceled).

64. (Previously presented) A compound of claim 43, wherein:

X is NHOH, OH, NROR, or CRROH; and

Z is CR or N.

65. (Previously presented) The method of claim 57, wherein:

R¹ is (C₆ or C₁₀) aryl, optionally substituted by (C₁-C₁₀) alkoxy, halo or (C₁-C₁₀) alkylamino;

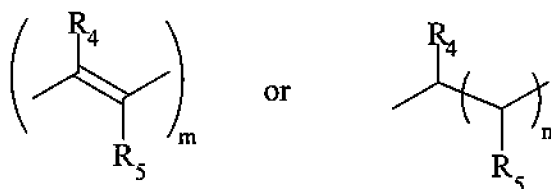
R² and R³ are each independently hydrogen or methyl, or R² and R³ optionally form a C₆ aryl;

n is equal to 0, 1 or 2;

X is hydroxyl (-OH), -OR, NHR, hydroxamate (-NHOH), NHOR, NROR, NRNHR, or SR, wherein each R is independently selected from hydrogen, C₁-C₆ alkyl or substituted C₁-C₆ alkyl;

Y is O, 1, or 2 oxygen atoms;

Q represents



wherein:

m is an integer from 1 to 4;

n' is an integer from 1 to 8; and

R⁴ and R⁵ each independently represent hydrogen or methyl.

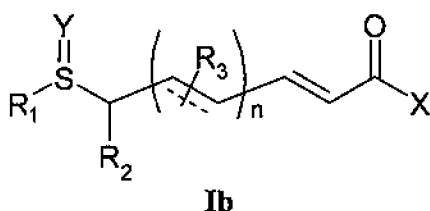
66. **(Previously presented)** The method of claim 57, wherein said compound of general formula (I) is:

- 6-Phenylsulfanyl-hexa-2,4-dienoic acid (6a),
- 6-(4-Chloro-phenylsulfanyl)-hexa-2,4-dienoic acid methyl ester (6b), or
- 6-Phenylsulfanyl-hexa-2,4-dienoic acid methyl ester (6c).

67. **(Previously presented)** A method of stimulating hematopoietic cells *ex vivo*, comprising administering an effective amount of a compound of general formula (I).

68-69. **(Canceled).**

70. **(Previously presented)** A compound of general formula (Ib)



wherein:

R^1 is (C_6 or C_{10}) aryl, (C_6 or C_{10}) arylalkyl, a 6- or 10-membered ring system having one or more heteroatoms in the ring, (C_6 or C_{10}) heteroaryl, (C_3 - C_8) heterocycloalkenyl, (C_5 - C_8) cycloalkene ring, (C_5 - C_8) cycloalkyl, (C_5 - C_8) heterocycloalkyl or a combination thereof to form a linked or fused ring system, the cyclic moiety being optionally substituted with (C_1 - C_{10}) alkyl, (C_1 - C_{10}) alkenyl, (C_1 - C_{10}) alkynyl, (C_1 - C_{10}) alkoxy, (C_1 - C_{10}) thioalkoxy, hydroxyl, (C_1 - C_{10}) hydroxylalkyl, halo, (C_1 - C_{10}) haloalkyl, amino, amido, (C_1 - C_{10}) alkylamino, (C_1 - C_{10}) alkylcarbonyloxy, (C_1 - C_{10}) alkoxycarbonyl, (C_1 - C_{10}) alkylcarbonyl, (C_1 - C_{10}) alkylthiocarbonyl, (C_1 - C_{10}) alkylsulfonylamino, aminosulfonyl, (C_1 - C_{10}) alkylsulfinyl, or (C_1 - C_{10}) alkylsulfonyl;

R^2 and R^3 are each independently hydrogen or methyl, or R^2 and R^3 optionally form a (C_6 or C_{10}) aryl;

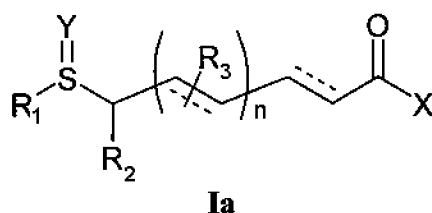
n is 0, 1 or 2;

X is hydroxamate (-NHOH); and

Y is 0, 1 or 2 oxygen atoms;

or a pharmaceutically acceptable salt thereof.

71. **(Currently amended)** The method of claim 57, wherein the compound of formula (I) has a structure of general formula (Ia):



wherein:

R¹ is (C₆ or C₁₀) aryl, (C₆ or C₁₀) arylalkyl, a 6- or 10-membered ring system having one or more heteroatoms in the ring, (C₆ or C₁₀) heteroaryl, (C₃-C₈) heterocycloalkenyl, (C₅-C₈) cycloalkene ring, (C₅-C₈) cycloalkyl, (C₅-C₈) heterocycloalkyl or a combination thereof to form a linked or fused ring system, the cyclic moiety being optionally substituted with (C₁-C₁₀) alkyl, (C₁-C₁₀) alkenyl, (C₁-C₁₀) alkynyl, (C₁-C₁₀) alkoxy, (C₁-C₁₀) thioalkoxy, hydroxyl, (C₁-C₁₀) hydroxylalkyl, halo, (C₁-C₁₀) haloalkyl, amino, amido, (C₁-C₁₀) alkylamino, (C₁-C₁₀) alkylcarbonyloxy, (C₁-C₁₀) alkoxy carbonyl, (C₁-C₁₀) alkylcarbonyl, (C₁-C₁₀) alkylthiocarbonyl, (C₁-C₁₀) alkylsulfonylamino, aminosulfonyl, (C₁-C₁₀) alkylsulfinyl, or (C₁-C₁₀) alkylsulfonyl,

R² and R³ are each independently hydrogen, (C₁-C₁₂) alkyl, unsaturated (C₂-C₁₂) comprising one or more C=C bond or C≡C bond, (C₁-C₁₀) alkoxy, (C₁-C₁₀) thioalkoxy, hydroxyl, (C₁-C₁₀) hydroxylalkyl, halo, or (C₁-C₁₀) haloalkyl; or

R² and R³ optionally form a (C₆ or C₁₀) aryl, (C₆ or C₁₀) arylalkyl, a 6- or 10-membered ring system having one or more heteroatoms in the ring, (C₃-C₈) heterocycloalkenyl, (C₅-C₈) cycloalkene ring, (C₅-C₈) cycloalkyl, (C₅-C₈) heterocycloalkyl linked or fused ring system, optionally containing up to 3 heteroatoms, e.g. oxygen, nitrogen, sulphur or phosphorous; or

R¹ and R² optionally form a (C₆ or C₁₀) aryl, (C₆ or C₁₀) arylalkyl, (C₆ or C₁₀) heteroaryl,

(C₃-C₈) heterocycloalkenyl, (C₅-C₈) cycloalkene ring, (C₅-C₈) cycloalkyl, (C₅-C₈) heterocycloalkyl linked or fused ring system, optionally the ring formed is further substituted with a group R¹ as defined above, or the ring formed is fused to a further C₆ aryl group which is optionally substituted with a group R¹ as defined above, or a group R¹R²N, with R¹ and R² as defined above;

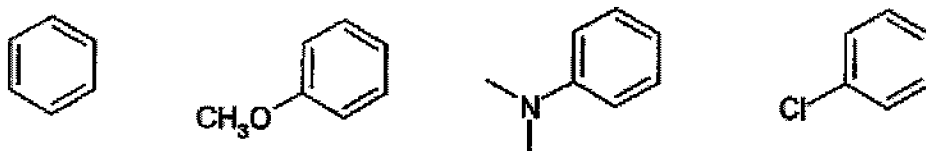
n is 0, 1 or 2;

X is hydroxyl (-OH), -OR, NHR, hydroxamate (-NHOH), NHOR, NROR, NRNHR, or SR, wherein each R is independently hydrogen, C₁-C₆ alkyl or substituted C₁-C₆ alkyl; and

Y is 0, 1 or 2 oxygen atoms; ~~or NR where R is H, OH, C₁-C₆ alkyl, or substituted C₁-C₆ alkyl;~~

or a pharmaceutically acceptable salt thereof.

72. (New) The compound of claim 70, in which R² and R³ are both Hydrogen (H), Y is equal to zero oxygen atoms, n is equal to 1, and R¹ is one of



73. (New) The compound of claim 70, wherein the compound is 6-(4-chloro-phenylsulfanyl)-hexa-2,4-dienoic acid hydroxamide (7b).

74. (New) The method of claim 71, in which R² and R³ are both Hydrogen; R² is methyl (CH₃) and R³ is Hydrogen; R² is Hydrogen and R³ is methyl (CH₃); or R² and R³ are both methyl (CH₃).

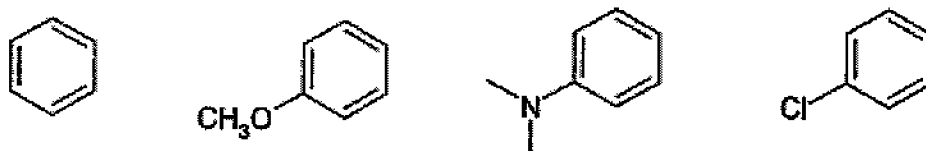
75. (New) The method of claim 71, in which R¹ is (C₆ or C₁₀) aryl, optionally substituted by

halo, (C₁-C₁₀) alkoxy or (C₁-C₁₀) alkylamino.

76. (New) The method of claim 75 in which R¹ is (C₆ or C₁₀) aryl, optionally substituted by chlorine, methoxy or dimethylamino.

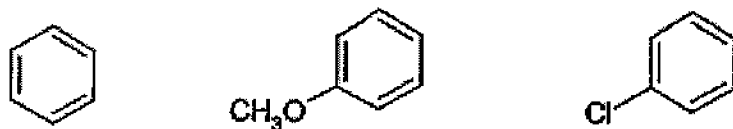
77. (New) The method of claim 71, in which X is -OH, -OC₂H₅, -OCH₃, or NHOH.

78. (New) The method of claim 71, in which R² and R³ are both Hydrogen (H), Y is equal to zero oxygen atoms, and n is equal to 1, R¹ is one of



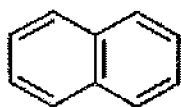
and X is one of -OH, -OCH₃, -OC₂H₅ or NHOH.

79. (New) The method of claim 71, in which R² and R³ are both Hydrogen (H), Y is equal to one oxygen atom, and n is equal to 1, R¹ is one of



and X is one of -OH, -OCH₃, -OC₂H₅ or NHOH.

80. (New) The method of claim 71, in which R² and R³ are both Hydrogen (H), Y is equal to two oxygen atoms, n is equal to 1, R¹ is one of



and X is one of -OH, -CH₃, -OC₂H₅ or NHOH.

81. (New) The method of claim 57, wherein said compound of general formula (I) is:
- 6-(4-Dimethylamino-phenylsulfanyl)-hexa-2,4-dienoic acid methyl ester (6d);
 - 6-(4-Methoxy-phenylsulfanyl)-hexa-2,4-dienoic acid methyl ester (6e);
 - 6-(4-Chloro-phenylsulfanyl)-hexa-2,4-dienoic acid hydroxyamide (7b);
 - 6-(4-Dimethylamino-phenylsulfanyl)-hexa-2,4-dienoic acid hydroxyamide (7c);
 - 6-Phenylsulfinyl-hexa-2,4-dienoic acid methyl ester (8a);
 - 6-(4-Chloro-benzenesulfinyl)-hexa-2,4-dienoic acid methyl ester (8b);
 - 6-(4-Methoxy-benzenesulfinyl)-hexa-2,4-dienoic acid methyl ester (8c);
 - 6-Benzenesulfinyl-hexa-2,4-dienoic acid (8d);
 - 6-(4-Chloro-benzenesulfinyl)-hexa-2,4-dienoic acid hydroxyamide (9a);
 - 6-(4-Methoxy-benzenesulfinyl)-hexa-2,4-dienoic acid hydroxyamide (9b);
 - 6-Benzenesulfonyl-hexa-2,4-dienoic acid (10a);
 - 6-Benzenesulfonyl-hexa-2,4-dienoic acid methyl ester (10b);
 - 6-Benzenesulfonyl-hexa-2,4-dienoic acid hydroxyamide (11a);
 - 6-(Naphthalen-2-ylsulfanyl)-hexa-2,4-dienoic acid methyl ester (13b);
 - 6-(Naphthalen-2-ylsulfanyl)-hexa-2,4-dienoic acid hydroxyamide (14a);
 - 4-(4-Dimethylamino-phenylsulfanyl)-2-methyl-pent-2-enoic acid methyl ester (21b);
 - 6-(4-Dimethylamino-phenylsulfanyl)-4-methyl-hepta-2, 4-dienoic acid ethyl ester (24c);
 - 6-(4-Dimethylamino-phenylsulfanyl)-4-methyl-hepta-2,4-dienoic acid hydroxyamide (25c);
 - 6-(4-Chloro-phenylsulfanyl)-hexanoic acid methyl ester (28b);
 - 7-(4-Chloro-phenylsulfanyl)-heptanoic acid ethyl ester (28c);
 - 6-(4-Amino-phenylsulfanyl)-hexanoic acid methyl ester (28d);

- 6-(4-Dimethylamino-phenylsulfanyl)-hexanoic acid methyl ester (28e);
6-(4-((4-Chlorobenzyl)-methylamino)-phenylsulfanyl)-hexanoic acid methyl ester (28f);
6-(4-(4-Chlorobenzenesulfonylamino)-phenylsulfanyl)-hexanoic acid methyl ester (28g);
6-(4-Bromo-phenylsulfanyl)-hexanoic acid methyl ester (28h);
6-(4'-Chloro-biphenyl-4-ylsulfanyl)-hexanoic acid methyl ester (28i);
6-(4-Chloro-phenylsulfanyl)-hexanoic acid hydroxyamide (29b);
6-(4-Dimethylamino-phenylsulfanyl)-hexanoic acid hydroxamide (29c);
6-(4-(4-Chlorobenzenesulfonylamino)-phenylsulfanyl)-hexanoic acid hydroxamide
(29g);
6-(4'-Chloro-biphenyl-4-ylsulfanyl)-hexanoic acid hydroxamide (29i);
6-(4-Chloro-benzenesulfinyl)-hexanoic acid methyl ester (30b);
7-(4-Chloro-benzenesulfinyl)-heptanoic acid ethyl ester (30c);
6-(4-Dimethylamino-benzenesulfinyl)-hexanoic acid methyl ester (30e);
6-(4-((4-Chlorobenzyl)-methylamino)-benzenesulfinyl)-hexanoic acid methyl ester (30f);
6-(4'-Chloro-biphenyl-4-ylsulfinyl)-hexanoic acid methyl ester (30i);
6-(4-Chloro-benzenesulfinyl)-hexanoic acid hydroxyamide (31a);
7-(4-Chloro-benzenesulfinyl)-heptanoic acid hydroxyamide (31c);
6-(4-Dimethylamino-benzenesulfinyl)-hexanoic acid hydroxyamide (31e);
6-(4-((4-Chlorobenzyl)-methylamino)-benzenesulfinyl)-hexanoic acid hydroxamide
(31f);
6-(4'-Chloro-biphenyl-4-sulfinyl)-hexanoic acid hydroxyamide (31i);
(2E, 4E)-5-(5-Dimethylamino-benzo[*b*]thiophen-2-yl)-penta-2,4-dienoic acid ethyl ester
(41a);
(2E,4E)-5-(5-Dimethylaminobenzo[*b*]thiophen-2-yl)-penta-2,4-dienoic acid hydroxamide
(42a);
(E)-3-(3-(4-Dimethylamino-phenylsulfanyl)-phenyl)-acrylic acid ethyl ester (51a); or
(E)-3-(3-(4-Dimethylamino-phenylsulfanyl)-phenyl)-N-hydroxy-acrylamide (52a).

82. (New) A pharmaceutical composition comprising a compound of claims 70, 72 or 73,

and optionally a pharmaceutically acceptable adjuvant and/or diluent.